

DYNAMIC DISPLAY DEVICE

CROSS-REFERENCE TO RELATED APPLICATION

This application claims benefit of U.S. Provisional Patent Application
5 No. 60/427,653, filed on November 20, 2002, which is incorporated herein by reference.

FIELD OF THE INVENTION

The present invention relates generally to entertainment devices and, more specifically, to devices for producing a dynamic visual display.

BACKGROUND OF THE INVENTION

10 Various types and varieties of light displays are common and frequently used to produce an interesting and aesthetic visual display that may include a variety of colors and/or flashing and sequencing—for example, to simulate motion. Such displays are typically used for personal use or for mood at social events. Most of these devices use one or more internal light sources and are restricted to a limited variety of color
15 possibilities. These units may include colored lights, color filters, electronics, and/or motors to achieve luminance, color, and movement. The more elaborate devices are costly and difficult to produce, and may be limited to a set variety of color and movement.

U.S. Patent No. 4,354,205, to Lowe et al., describes an image-modifying
20 television attachment using the image generated by a television to produce an abstract display of lights. The Lowe et al. patent describes a narrow ($\frac{1}{4}$ -inch) opaque frame that houses a reflective, two-inch lattice. A planar, translucent screen is mounted in front of the lattice. A flexible hook-and-loop type hanger strap engages a mating strap that is glued to the front or top of a television. Though a fairly resolved device, there are a number
25 of disadvantages to this design. For example, the device requires the users to glue a piece

to their existing television. Also, the translucent screen fits within an opaque housing, which blocks at least a portion of the display. Another disadvantage is that the display is planar, and therefore does not provide any image viewable from the side. Also, although the frame structure has a curved back edge, the lattice structure has a planar back edge,
5 which would not conform well to conventional television displays. Finally, this device requires many parts and costly manufacturing techniques.

A similar device is disclosed in U.S. Patent No. 4,357,771, to Olds, although rather than utilizing a lattice, Olds discloses a light-collector means comprising a solid rectangular body that has been perforated to provide a plurality of light-collector
10 channels. Similar to Lowe et al., Olds also teaches a planar translucent screen element that is housed in an opaque housing, and the light-collector has a planar rearward surface. Therefore, the apparatus disclosed by Olds shares the disadvantages discussed above.

Many of the disadvantages found in the prior art are overcome by the present invention.

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SUMMARY OF THE INVENTION

A dynamic display device is disclosed that is attachable to a monitor, such as a television monitor, to convert the light/image from the monitor into a moving, abstract display.

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The dynamic display device includes an opaque grid lattice defining a number of parallel channels that extend generally outwardly from the monitor, including a number of open peripheral channels. The channels of the lattice are open at the front and back, and the peripheral channels are also open on at least one open side. A translucent panel is attached to the lattice, covering the open forward ends and the open sides of the channels. Attachment devices, such as suction cups, are attached to the lattice for releasably
25 installing the device on the monitor. Light from the monitor entering the channels is diffused and visible through the translucent panel covering the open forward ends and the open sides of the peripheral channels.

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An object of the invention is to provide an easily manufactured, lightweight device that is releasably attachable to a monitor and that intercepts the light from the monitor to produce a dynamic abstract display.

In an embodiment of the invention, the grid lattice and translucent panel are formed such that the device is inflatable.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing aspects and many of the attendant advantages of this invention will become more readily appreciated as the same become better understood by reference to the following detailed description, when taken in conjunction with the accompanying drawings, wherein:

FIGURE 1 is a perspective view of a dynamic display device shown affixed to television, according to the present invention;

FIGURE 2 is a back perspective view of the dynamic display device shown in FIGURE 1;

FIGURE 3 is a front perspective view of the dynamic display device shown in FIGURE 1;

FIGURE 4 is an exploded perspective view of the dynamic display device shown in FIGURE 1;

FIGURE 5 is a front perspective view of a second embodiment of a dynamic display device, according to the present invention; and

FIGURE 6 is a back perspective view of the dynamic display device shown in FIGURE 5.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Now referring to the drawings in detail and initially to FIGURES 1-4 thereof, a first preferred embodiment of a dynamic display device 10, according to the present invention, is disclosed. While one size is shown in the following drawings, it will be readily apparent that the device may be made in any number of sizes to accommodate the variety of televisions on the market.

FIGURE 1 shows a perspective view of the dynamic display device 10 being attached to the screen 14 of a common television receiver or other monitor 12. The device 10 is designed to attach to the screen 14 using suction cups 24a and 24b (FIGURE 2).

As seen most clearly by comparing FIGURES 2 and 4, the main structural elements of the display device 10 are a lattice structure shown formed with vertical and horizontal grid elements 18 and 20, a unitary, translucent, folded panel 16 that defines a three-dimensional structure having translucent front and side portions, and at least one

suction cup (two shown) 24a, 24b for attaching the dynamic display device 10 to a monitor 12.

The grid elements 18, 20 include cooperative slots 19 that are adapted to slidably engage together and form a rigid framework to which the other elements of display device 10 attach. The grid elements 18 and 20 are made of white, opaque, plastic material, such as an expanded (foamed) polyvinylchloride ("PVC") sheet, and the assembled framework is open about the periphery of the grid structure. In a preferred embodiment, if the display device 10 is to be used with a conventional CRT monitor 12 having a curved display surface, the grid elements 18, 20 are contoured along their rearward edge to approximately accommodate the curvature of the screen 14. The grid elements 18, 20 front edge, and ends are generally flat to smoothly abut the translucent folded panel 16, to facilitate the generation of a flat crisp display at it's front surface 16f and it's side surfaces 16a, 16b (FIGURE 3).

In the preferred embodiment, the folded panel 16 is a lightweight diffusing translucent plastic material, such as a sheet of rigid PVC, 0.010 to 0.050 inches thick. In the presently preferred embodiment, the folded panel 16 is die cut from a single sheet of material and folded into its box like shape. The material must be lightweight to allow it to be easily supported, flexible enough to be formed into the desired three-dimensional shape, and have suitable light diffusing properties. The folded panel 16 is disposed about the lattice defined by the grid elements 18, 20. The suction cups 24a and 24b are attached to the grid elements 18 and/or 20 by cup holders 22a, 22b. The cup holders 22a, 22b frictionally attach to the edge of grid elements 18, 20 and engage the enlarged head portions of the suction cups 24a, 24b.

It will be appreciated that the disclosed dynamic display device 10 provides a very simple, easily constructed, and lightweight apparatus that may be readily attached to and removed from a television set or other display device. Moreover, utilizing a rectangular, solid-shaped display element, i.e., folded panel 16, provides a visual display that can be viewed in part even when the user is located to the side of the display device. The contoured rearward edge of the grid elements 18, 20 improves the quality of the display by reducing leakage of light between adjacent cells, and provides a closed fit between the dynamic display device 10 and the monitor 12.

The dynamic display device 10 is easily assembleable and utilizes a minimal number of components. To assemble the device, the grid elements 18, 20 are fabricated to size, with mating slots, and assembled to form the desired grid structure. The translucent folded panel is die cut and scored, and is wrapped about the fronts and sides 5 of the grid structure formed by the grid elements 18, 20, and attached thereto. The suction cups 24a, 24b, including the cup holders 22a, 22b are then attached to the grid elements 18, 20.

FIGURES 5 and 6 show an alternative embodiment of a dynamic display device that produces a display very similar in function as the previous embodiment, but being 10 manufactured in an entirely different way. The dynamic display device 28 of this second embodiment is constructed generally as a unitary, hollow, and generally rectangular member, with an internal grid. The dynamic display device 28 is formed from a flexible plastic and adapted to be inflated. The dynamic display device 28 is formed using a white translucent material 30 on its sides and front surfaces, such that the display 15 functions similar to the translucent folded panel 16 in the previous embodiment.

FIGURE 6 shows the back perspective view of the dynamic display device 28. Preferably, a clear material 34 is used at its back face, letting a maximum amount of light and color from the monitor 12 enter the device. Preferably, an opaque material 32 forms the internal grid, or is applied to the internal grid, to create the light channels for optimal 20 light diffusion. An air valve 38 is provided for inflation and deflation of the dynamic display device 28. It will be appreciated that the air valve 38 may be located in any convenient location on the device 28.

In the preferred embodiment, one or more sections of removable, reusable adhesive material 36—for example, Microsuction™ tape, available from Manco, Inc.— 25 is provided for attaching the device to a light emitting screen. Alternatively, one or more suction cups could also be used to attach the dynamic display device 28 to the monitor 12.

The manner of using either embodiment of dynamic display device 10, 28 is simple. The user simply presses the attachment device, such as the suction cups 24a, 24b 30 onto the screen of a light-emitting source, such as a television monitor, with the device 10, 28 in the desired position. The television may then be tuned to any

channel—for example, a music video channel—and the light and color emitting from the screen will be dynamically displayed in an abstract pattern.

While currently preferred embodiments of a dynamic display device are disclosed herein, it will apparent to persons of skill in the art that straightforward variations on the disclosed embodiments may readily be made without departing from the present invention. For example, although two suction cups 24a, 24b are disclosed, one or more than two suction cups could alternatively be used, or alternate attachment mechanisms, such as reusable adhesives or gels, or the like, could be used to achieve the same result. Also, for example, the suction cups may be provided with a mechanism for breaking the suction to facilitate removal of the device.

As another alternative, the internal grid elements 18 and 20 may be manufactured as a single piece. Other manufacturing techniques, like injection molding or vacuum forming, could be utilized to achieve this. Alternatively, the translucent panel 16 and opaque internal grid elements 18, 20 may be formed unitarily. The translucent panel 16 may also be formed by another manner than die cut and folded—such as by injection molding or thermal forming into its shape. Also, the translucent panel 16 may alternatively be made from different translucent materials, such as paper, high-density polyurethane, or polycarbonate sheet.

While the preferred embodiment of the invention has been illustrated and described, it will be appreciated that various changes can be made therein without departing from the spirit and scope of the invention.